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ABSTRACT

A new method is provided for the creation of a solder mask for solder bump formation. A passivation layer is deposited on the semiconductor surface in the surface of which a contact pad has been provided, an opening is created in the layer of passivation that partially exposed the surface of the contact pad. A layer of UBM metal is deposited and patterned, limiting the layer of UBM to overlying and contacting the contact pad of the solder bump. A layer of elastomer is blanket deposited over the surface and patterned, creating an opening overlying the opening created in the layer of passivation, exposing the layer of UBM. The exposed surface of the layer of UBM is electroplated with a layer of solder, using the opening created in the layer of elastomer as the self-aligned electroplating opening. A step of reflow of the electroplated solder and the layer of elastomer completes the process of the invention, creating a solder bump surrounded by a layer of cured elastomer. Solder flow and elastomer curing are performed in the same step, and a special UBM design is used for the exposure of the UBM pad.

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